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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/884,855 | 06/19/2001 | Takeshi Sakuma | 782_168 | 1887 |
| 25191 | 7590 | 10/06/2003 | EXAMINER | |
| BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068 | | | VO, TUYET THI | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2821 | |

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,855

Applicant(s)

SAKUMA ET AL.

Examiner

Tuyet Vo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remarks

Applicant's amendment filed July 30, 2003 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Samuel Woolsey (US Pat. 3,591,830), hereinafter Samuel.

Samuel discloses a high voltage pulse generating circuit (Fig. 4) comprising:

a DC voltage source (6, 7) having first and second output terminals (6, 7);

a first switch (10) having one end connected to the first output terminal of the DC voltage source;

a branch circuit including a free-wheel diode (15) connected across the other end of the first switch (10) and the second output terminal (7) of the DC voltage source; and

a series circuit including an inductance (2) and a second switch (S) and being connected in parallel with the branch circuit; wherein after turning the first and second switches on to store inductive energy in the inductance (col. 2, lines 38-48), the energy stored in the inductance is commutated to a load (L) connected across the second switch (S) by turning the first and second switches off (col. 2, lines 53-72).

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samuel.

Regarding claims 2 and 3, Samuel discloses substantially the claim invention as noted above except for the second switch is formed by a semiconductor switch.

It would have been an obvious matter of design choice to select any type of switch to control a passage time of a current through the switch opened/closed as long as it suited. Implementing a semiconductor switch for the second switch is considered as a routine skill in the art since semiconductor switches being well known in the electronic market.

Regarding claims 8-11, Samuel discloses substantially the claim invention as noted above except for specifying a specific time to control the second switch on and off.

Even though Samuel does not specifically disclose a mount of time to drive the second switch on/off as required in claims, but it would be obviously/inherently recognized by one having other skill in the art to realize that the second switch must be operated in some manner of time so as to provide the stored energy from the inductor (2) to the load. A time settings to operate on/off of a switch can be utilized by a number of resistors and capacitors as desired for a particular application. Such implementation is considered as a routine skill in the art.

Regarding claims 12 and 13, Samuel discloses substantially the claim invention as noted above except for a parallel circuit of a capacitor and/or resistor is connected in parallel/series with the free-wheel diode.

It would have been an obvious matter of design choice to implement the free-wheel diode with capacitor and/or resistor in order to avoid stress on the diode due to its conduction of a short large current. Such implementation is considered as a routine skill in the art.

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5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samuel as applied to claim 1 above, and further in view of the admitted prior art cited by the applicant.

Samuel discloses substantially the claim invention as noted above except for the load is a discharge gap provided in a plasma generating reactor.

The prior art discloses a high voltage pulse generating circuit (Figs. 1 and 2) for arcing the discharge gap (5) in a plasma generating reactor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the discharge gap as taught by the admitted prior art into the Samuel driving circuit in order to excite a plasma gas with a abrupt high voltage to produce a laser pulse at a desired energy.

Allowable Subject Matter

6. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to comprise one of iron cores corresponding for each of second semiconductor elements, wherein all primary windings of corresponding cores connected in series with the free-wheel diode and all secondary winding of corresponding cores connected to gates and cathode terminals respectively constructed in a manner as required in claim 4.

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyet Vo whose telephone number is 703 306 5497. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 703 308 4856. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703 308 7722 for regular communications and 703 308 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

A handwritten signature in dark ink, appearing to read 'Tuyet Vo', is written over a horizontal line.

Tuyet Vo

September 24, 2003